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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,130	12/05/2003	David Trevas	27735.39	8991

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EXAMINER	
COY, NICOLE A	
ART UNIT	**PAPER NUMBER**
3672	

DATE MAILED: 12/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/729,130	TREVAS, DAVID	
	Examiner	Art Unit	
	Nicole Coy	3672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6,20-25,27,35-44 and 46* is/are rejected.

7)☒ Claim(s) *5, 7-19 ,26, 28-34 and 45* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/22/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: On page 4 paragraph [0016] the applicant states that 28a is a tapered drive surface and an impact face. Appropriate correction is required.

In addition, on page 4 paragraph [0016] applicant refers to 24c as a tongue guide, and on page 10 paragraph [0032] applicant refers to 24a as a tongue guide. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4, 6, 20-25, 27, 35-38, 41-44, and 46 are rejected under 35 U.S.C. 102(b) as being anticipated by Cleary (USP 3,307,640).

With respect to claim 1, Cleary discloses an impact generating system for applying rotary percussive impacts to a drill bit, the system comprising: an anvil for

connection to the bit (see figure 2 numeral 13), a hammer disposed in the anvil for movement about the axis of the anvil in one direction (see figure 2 numeral 21 and column 4 lines 12-16), and a device for storing energy in response to the movement of the hammer in the one direction and converting the energy into a force in a direction opposite the first direction for driving the hammer in the opposite direction and against a wall of the anvil to produce the percussive impacts (see figure 1 numerals 61 and 63 and column 6 lines 1-19).

With respect to claim 2, Cleary discloses a system further comprising a fluid flow system for directing fluid against the hammer to drive the hammer in one direction (See column 1 lines 27-48).

With respect to claim 3, Cleary discloses a surface which is provided on the hammer against which the fluid impacts for moving the hammer in the one direction (see figures 1 and 2).

With respect to claim 4, Cleary discloses a control device for selectively directing the flow of the fluid against the hammer to cause the hammer to move in one direction, and for selectively terminating the flow of fluid against the hammer to permit the hammer to move in the opposite direction (see figure 1 and column 7 line 74 to column 8 line 10).

With respect to claim 6, Cleary discloses that the hammer is disposed in a chamber that receives the fluid, and wherein the fluid is discharged from the chamber after the flow against the hammer has been terminated (see figure 1 numeral 39 and column 8 lines 10-23).

With respect to claim 20, Cleary discloses that the energy storage device is a spring connected between the hammer and the anvil that compresses in response to the movement of the hammer in the one direction and releases in response to the movement of the hammer in the opposite direction (see figure 1 numerals 61 and 63 and column 6 lines 1-19).

With respect to claim 21, Cleary discloses that the hammer moves circumferentially relative to the axis of the anvil (see figure 1 and column 4 lines 11-16).

With respect to claim 22, Cleary discloses a method for applying rotary percussive impacts to a drill bit, the method comprising: connecting an anvil to the bit (see column 1 lines 45-48); driving a hammer in one direction in the anvil when the bit encounters a relatively large load (see column 1 lines 27-48); storing energy during the step of driving (see column 6 lines 1-19); and releasing the stored energy to drive the hammer in a direction opposite the first direction to produce the percussive impacts (see figure 1 and column 1 lines 27-48).

With respect to claim 23, Cleary discloses a hammer that moves circumferentially relative to the axis of the anvil (see figure 1 and column 4 lines 11-16).

With respect to claim 24, Cleary discloses that the step of driving comprises discharging fluid against the hammer (see column 1 lines 27-48).

With respect to claim 25, Cleary discloses that the fluid is selectively directed against the hammer to cause the hammer to move in the one direction, and further comprising selectively terminating the flow of fluid against the hammer to permit the

hammer to move in the opposite direction (see figure 1 and column 7 line 74 to column 8 line 10).

With respect to claim 27, Cleary discloses providing a chamber in the anvil that receives the hammer and the fluid, and discharging the fluid from the chamber after the flow against the hammer has been terminated to permit the movement of the anvil in the opposite direction (see figures 1 and 2, and column 7 line 74 to column 8 line 10).

With respect to claim 35, Cleary discloses a method of drilling a well bore through a subsurface formation with a bit connected to the lower end of a drill string, the bit having a bit axis and a bit face extending laterally relative to the bit axis, comprising rotating the bit into the formation to form a well bore (see column 1 lines 47-48, wherein the drill bit forms a well bore); and applying percussive impacts to the bit in a circumferential direction about the bit axis while maintaining a substantially constant axially directed force against the bit (see column 1 lines 27-48).

With respect to claim 36, Cleary discloses flowing drill fluid through the bit, converting kinetic energy provided by the flowing drill fluid into stored energy, and utilizing the store energy for applying the percussive impacts (see column 1 lines 27-48).

With respect to claim 37, Cleary discloses releasing potential energy to a hammer to drive the hammer so that the hammer strikes against an anvil connected to the bit to apply said percussive impacts to the bit (see figure 1 and column 1 lines 27-48).

With respect to claim 38, Cleary discloses controlling the flow of the drilling fluid through chambers provided in the anvil to repeatedly store and generate the percussive impacts (see column 7 line 74 to column 8 line 10).

With respect to claim 41, Cleary discloses an impact generating system for applying rotary percussive impacts to a drill bit, the system comprising: an anvil for connection to the bit (see figure 1), a hammer disposed in the anvil for movement about the axis of the anvil in one direction (see figure 2 and column 4 lines 12-16), and a fluid flow system for directing fluid against the hammer to drive the hammer in the one direction (see column 1 lines 27-48).

With respect to claim 42, Cleary discloses that a surface is provided on the hammer against which the fluid impacts for moving the hammer in the one direction (see figures 1 and 2).

With respect to claim 43, Cleary discloses a control device for selectively directing the flow of the fluid against he hammer to cause the hammer to move in the one direction and for selectively terminating the flow of fluid against the hammer to permit the hammer to move in the opposite direction (see figure 1 and column 7 line 74 to column 8 line 10).

With respect to claim 44, Cleary discloses a device for storing energy in response to the movement of the hammer in the one direction and converting the energy into a force in a direction opposite the first direction for driving the hammer in the opposite direction and against a wall of the anvil to produce the percussive impacts (see figures 1 and 2 and column 1 lines 27-48).

With respect to claim 46, Cleary discloses that the hammer moves circumferentially relative to the axis of the anvil (see figure 1 and column 4 lines 11-16).

4. Claims 41-43 and 46 are rejected under 35 U.S.C. 102(b) as being anticipated by Orr et al. (USP 3,316,986).

With respect to claim 41, Orr et al. discloses an impact generating system for applying rotary percussive impacts to a drill bit, the system comprising: an anvil for connection to the bit (see figure 2 wherein the anvil is capable of being connected to the bit), a hammer disposed in the anvil for movement about the axis of the anvil in one direction (see figure 2), and a fluid flow system for directing fluid against the hammer to drive the hammer in one direction (see column 2 line 70 to column 3 line 1).

With respect to claim 42, Orr et al. discloses a system wherein a surface is provided on the hammer against which the fluid impacts for moving the hammer in the one direction (see figure 2).

With respect to claim 43, Orr et al. discloses a system further comprising a control device for selectively directing the flow of the fluid against the hammer to cause the hammer to move in the one direction and for selectively terminating the flow of fluid against the hammer to permit the hammer to move in the opposite direction (see figure 4).

With respect to claim 46, Orr et al. discloses that the hammer moves circumferentially relative to the axis of the anvil (see figure 2).

5. Claims 22-25, 35-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Gillis et al. (USP 6,742,609).

With respect to claim 22, Gillis et al. discloses a method for applying rotary percussive impacts to a drill bit, the method comprising: connecting an anvil to the bit (see abstract); driving a hammer in one direction in the anvil when the bit encounters a relatively large load (see figures 4b and 4c); storing energy during the step of driving (see column 2 lines 19-20); and releasing the stored energy to drive the hammer in a direction opposite the first direction to produce the percussive impacts (see column 2 lines 20-23).

With respect to claim 23, Gillis et al. discloses that the hammer moves circumferentially relative to the axis of the anvil (see figure 4b and 4c).

With respect to claim 24, Gillis et al. discloses that the step of driving comprises discharging fluid against the hammer (see column 2 lines 8-11).

With respect to claim 25, Gillis et al. discloses that the fluid is selectively directed against the hammer to cause the hammer to move in the one direction, and further comprising selectively terminating the flow of fluid against the hammer to permit the hammer to move in the opposite direction (see column 2 lines 8-11).

With respect to claim 35, Gillis et al. discloses a method of drilling a well bore through a subsurface formation with a bit connected to the lower end of a drill string, the bit having a bit axis and a bit face extending laterally relative to the bit axis, comprising: rotating the bit into the formation to form a well bore (see figure 1 and column 1 lines 47-67); and applying percussive impacts to the bit in a circumferential direction about

the bit axis while maintaining a substantially constant axially directed force against the bit (see column 2 lines 12-28).

With respect to claim 36, Gillis et al. discloses flowing drilling fluid through the bit (see column 3 lines 57-67), converting kinetic energy provided by the flowing drilling fluid into stored energy (the energy is inherently converted), and utilizing the stored energy for applying the percussive impacts (see column 2 lines 8-11).

With respect to claim 37, Gillis et al. discloses that the step of utilizing comprises releasing the potential energy to a hammer to drive the hammer so that the hammer strikes against an anvil connected to the bit to apply said percussive impacts to the bit (see column 4 lines 45-55).

With respect to claim 38, Gillis et al. discloses controlling the flow of the drilling fluid through chambers provided in the anvil to repeatedly store and generate the percussive impacts (see column 3 lines 27-30).

With respect to claim 39, Gillis et al. discloses rotating the drill bit utilizing the flowing fluid (see column 2 lines 8-11).

With respect to claim 40, Gillis et al. discloses rotating the bit with the drill string (see column 1 lines 27-30).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Orr et al. in view of Gillis. Orr et al. does not teach a device for storing energy in response to the movement of the hammer in the one direction and converting the energy into a force in a direction opposite the first direction for driving the hammer in the opposite direction and against a wall of the anvil to produce the percussive impacts. Gillis teaches a device for storing energy in response to the movement of the hammer in one direction and converting the energy into a force in a direction opposite the first direction for driving the hammer in the opposite direction and against a wall in the anvil to produce the percussive impacts to increase the instantaneous torque and hence to cut through the difficult formation. See column 2 lines 12-28. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Orr et al. by including a device for storing energy in response to the movement of the hammer as taught by Gillis in order to produce percussive impacts and increase the instantaneous torque to cut through a difficult formation.

Allowable Subject Matter

9. Claims 5, 7-19, 26, 28-34, and 45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicole Coy whose telephone number is 571-272-5405. The examiner can normally be reached on M-F 8:00-5:30, 1st F off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on 571-272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nicole A Coy

nac

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